

# THE AMERICAN Railroad Journal.

ESTABLISHED 1831.

Steam Navigation, Commerce, Finance, Banking, Machinery, Mining, Manufactures.

SECOND QUARTO SERIES.—VOL. XXXVIII., No. 14.]

NEW YORK, APRIL 8, 1882.

[WHOLE No. 2,398.—VOL. LV.

## The First Passenger Cars.

A VERY interesting picture of the Baltimore and Ohio Railroad and one of its horse cars appears in "Goodrich's American Geography," written in 1831, and published in Boston by Waitt & Dow. The following reference to the road appears on page 36, immediately above a carefully engraved illustration: "The most interesting thing at Baltimore is the railroad, which is to extend from Maryland to Ohio. Here is a picture of one of the cars on this railroad." The outside passengers reached the top of the car by climbing upon one of the forward wheels of the car, thence over the driver's seat, as in gaining the top of the old-fashioned stage coach. Entrance to the interior of the car was made through a door at the rear of the vehicle, as in the present omnibus admission. Curtains protected passengers from rain or wind, and these fixtures were adjustable, as we now observe them upon the open cars of modern horse railroads and the popular "barges" used during the summer about our large New England towns and villages. The cars of the Baltimore and Ohio Railroad were moved by horse power during a considerable period before the experiments with steam engines were successful upon that line.

## The Mississippi Inundations.

THE distinguished German engineer and traveler, Chevalier Ernst von Hesse Wartegg, in referring to the recent Mississippi River overflows, says that levees on the Mississippi will be money thrown away, and that \$100,000,000 already spent in that way has been totally ineffective. He says the way to make the Mississippi behave is to help it in the effort it is making to shorten itself toward the Gulf. In 1721 the distance from Cairo to New Orleans was 1,215 miles, and to-day it is 210 miles less than that, or only 974 miles. He says Red River ought to be drawn off from the Mississippi, and allowed to run to the gulf through the Calcasieu River, which would be only eighty miles instead of 500 miles it has to run through of the Mississippi. Both the Ohio and the Red rivers are a barrier to the rapid current of the Mississippi. The Wachita ought to be connected with the Atchafalaya, and let off to the gulf that way, instead of embarrassing the Mississippi. The Mississippi ought to be connected with Lake Borgne, as proposed by Captain Cowden, which would draw off one-tenth of the whole body of water. He said that the

River Po, in Italy, which has magnificent levees, is regularly inundated, and that the tendency of these levees is to raise the bed of the river by depositions in it; so that the Po, the Mississippi and many other streams with artificial banks really run on a high ridge of land, from which they inevitably overflow the surrounding country. He says levees from Cairo to New Orleans would cost \$100,000,000, and would meet with the same fate as the others, and that artificial means cannot keep the tremendous river within bounds, and the only way to do it is to aid nature to find the straightest way to the gulf.

## Restaurant Cars.

THE Pennsylvania Railroad will shortly add a new feature to its limited express running between New York and Chicago. Samuel H. Carpenter, General Eastern Passenger Agent of the road, said that the company was building a number of restaurant cars especially for this train, and it would not be long before they would be put in operation. The coaches will be fitted up for the sole purpose of dining-cars, and meals will be served table d'hôte at 75 cents each. They will not be run as part of the train, but will be attached at meal hours, and will be detached when the passengers conclude eating. The cars will stand at designated stations with the meals prepared, and it will only be necessary, after they are coupled on, for passengers to step from the regular coaches into them and take their seats at the table. Besides affording immunity from eating-houses, the long stops for refreshments will be avoided and much better time can be made. Hitherto when meals have been served on trains on the line, cars put to other uses as well have been used.

## Importing Locomotives to the United States.

THE Philadelphia Record says that three locomotives have been imported from England by a firm in that city. They were consigned to Alfred Earnshaw, of Walnut Place, who stated to a reporter that they had been purchased as pattern stock, from which to manufacture others after their model, for use in the United States. They are small shifting engines of very simple construction, such as are used on the English roads, and it is the opinion of the importers that they can be manufactured here much cheaper than the ones now

used by our railroad companies, while serving their purposes quite as well.

## Railroad Taxation in Maine.

By virtue of an act entitled "An act relating to the taxation of railroads," approved March 17, 1881, the Governor and Council have ascertained the amount of the excise tax for the year 1882 which the several railroad corporations in Maine must pay for the privilege of exercising their respective franchises to be as follows: Grand Trunk, \$12,095.56; Bangor and Piscataquis, \$250.49; Boston and Maine, \$18,626.62; Bucksport and Bangor, \$49.50; European and North American, \$4,713.92; Eastern Railroad, \$18,652.86; New Brunswick and Canada, \$40.65; Knox and Lincoln, \$620.29; Maine Central, \$28,156.18; Portland Horse Railroad, \$958.14; Portland and Ogdensburg, \$138.45; Portland and Rochester, \$1,196.26; Rumford Falls and Buckfield, \$100.15; Sandy River Valley, \$34.63; Somerset, \$67.20; St. Croix and Penobscot, \$89.07; Old Orchard Beach, \$9.77; New Brunswick, \$20.12.

## Fractional Currency.

EFFORTS have recently been made by the circulation of petitions, etc., in this city and elsewhere, looking to the restoration to circulation of fractional currency, and information received from Washington leads to the hope that there is a fair prospect of success. United States Treasurer Gilfillan says that there is a progressing need of fractional currency, demands for it in small quantities coming from all parts of the country. It is needed for transmission through the mails of sums less than one dollar and for certain classes of business that have been wholly destroyed for want of this medium of exchange. He advocates the issue and claims the right to do this, but an appropriation to pay expenses is first necessary. Business men will need no reminder of the inconvenience which has resulted from the substitution of coin for the fractional currency. Those engaged in certain retail lines have been bereft by the change of a large and lucrative trade through the mails, and the greater part of that retained has proved a nuisance because of postage stamps being used to pay bills. The stamps usually received are of denominations too large for letter postage, so that many firms have large quantities of them of all values above three cents on hand. The Government will not exchange or purchase these, so that this

form of receipts represents almost entirely dead loss. Many newspaper offices, especially the weeklies, are similarly afflicted.

The fractional currency was also popular with the people. The convenience with which the mails were formerly used for remitting for small purchases, etc., contrasted with the present impossible use of the coin for that purpose, is still appreciated. In ordinary use, the fractional currency was better than coin. When old or mutilated it could be conveniently exchanged. Counterfeiting was almost if not quite impossible. It was light in weight. On the contrary the subsidiary coin offers facilities for clipping, punching and other swindling mutilations. It is comparatively easy to counterfeit, and one or two dollars of it is as much as an able-bodied person cares to lug around habitually.

The petitions should be circulated again and a strong effort be made to persuade Congress to provide an appropriation such as Treasurer Gilfillan refers to. Blank petitions may be had by addressing D. A. Hopkins, *American Sentry*, New York City.

#### Trade with South America.

INFORMATION has reached this city from Rio de Janeiro that the steamship communication between the Amazon River and New York is to be opened this month by the Booth Steamship Company, a line of steamers which has been running in competition with the Amazon River Steamship Company. The first steamer will sail from Manaus, about 600 miles from the mouth of the Amazon, on April 30. The object is to develop the interior provincial trade, and stops will be made at Macapa, Obidos and Santaran. The line will be started with two steamers, which will make only four trips a year. They are of iron, of a capacity for a thousand tons of cargo, and will have accommodation for eighty passengers. The principal import from the Amazon is rubber, and it is believed that with four trips a year the line will be remunerative. It was recently stated by a Brazilian merchant that while the trade from the Amazon to the United States is small, there is a large export business from this country, and it is growing exclusively. Freight for the interior and on the river is landed at Para, where it is transhipped to the river steamers.

#### A French Opinion of American Railroads.

M. SIMONIN, a French engineer who traveled extensively in the United States, and who writes on engineering subjects in the principal French papers, wrote a recent article on "Railways in the United States." Speaking of "the security and comfort" of our lines, he says: "It would be erroneous to think that American railways were greatly deficient amidst this feverish building of new lines. There is a legend to the effect that the life and security of passengers are not taken into consideration in that country, and that whole trains are precipitated into rivers from bridges and embankments; but such accidents do not form nowadays even the exception. By comparing statistics, we find that, all things taken into con-

sideration, there are fewer accidents in the States than anywhere else. We must only remember that the total length of railways in the States is about equal to that of the whole world besides, and that there is more traveling there than anywhere else. Let us add that nowhere has such care been given to the security and comfort of travelers. Who invented the train brake? Who thought of Pullman cars, bells, cow-catchers, snow-clearers, signal-cords and the house for the engineer?" After referring to the eternal progress which is the American characteristic, and describing the recent improvements on the New York Central, he says: "Why cannot we introduce these improvements into France? Because the French companies affirm that whatever is good in the American system is bad for the French."

#### Taxation of Telegraph Messages.

IN the United States Supreme Court at Washington on the 3d inst., in the case of the Western Union Telegraph Company vs. the State of Texas, the question presented was the right of a State to impose a tax of 1 per cent each on telegraph message sent and received at all offices within its limits without making any discrimination between telegrams sent to points in the State and those sent to points out of the State, and without excepting from the operation of the tax messages sent by agents of the Government on Government business. The court held that a State may tax telegraph companies at its discretion, where such messages pass between points within the State limits, but that the taxation of messages which originate or go outside the State is a regulation of interstate commerce, and as such is beyond the power of the State. The taxation of Government messages is also unconstitutional, for the reason that it is taxation by the State of the means employed by the Government of the United States to execute its powers. The judgment of the court below is reversed, with costs, and the cause remanded with instructions to reverse the judgment of the District Court of Travis county, and proceed thereafter as justice may require, not inconsistent with the opinion of this court. Opinion by Chief Justice Waite.

#### A Curious Clock.

MR. S. HOLTON, a jeweller and watchmaker of Middlebury, has recently constructed a curious clock, which acts out to perfection the assassination of President Garfield. The machine is a common cuckoo clock, under which is a miniature depot. At one window is a ticket agent dealing out tickets, while at another a telegraph operator is seen busy at his work, and truckmen, porters, train dispatches, etc., are all flying around as natural as life. All of these figures are of wood, about two inches long. At the end of each hour the cuckoo announces the fact, and immediately Garfield appears on the platform on which the scene is enacted, accompanied by Mr. Blaine. Guiteau is seen to follow him, having just alighted from a truck wagon, and as he fires at the President the latter falls. Just then a train of cars comes dashing in, and in the confusion all the principal

actors are carried into the depot out of sight. After the train dispatcher has given the signal and the train has gone, a small door at the left opens and a priest appears, book in hand, in the act of reading a funeral service, while at the same time another door at the right opens and Guiteau appears on the gallows. The priest retires and shortly after the gallows disappears with Guiteau, and the doors close. This is acted out at the end of each hour, and takes about three minutes. Mr. Holton is quite a noted inventor, but this seems to be his masterpiece, and has to be seen to be fully appreciated.

#### Legal Negligence.

IN the case of the Lake Shore and Michigan Southern Railway Co. v. Bangs, Michigan Supreme Court, Jan. 18, 1882, 11 N. W. Rep. 276, it was held that it is negligent in a passenger to leap from a train moving six miles an hour, for the purpose of getting off at a station where the train should but does not stop, although he does so to save anxiety to his mother, who is expecting him, and although others have frequently jumped off trains going at that rate of speed. The court said: "We have reluctantly felt ourselves compelled to hold that in our judgment such conduct is, beyond any question, negligence, and that the jury should have been so instructed. The fact that many persons take the risk of leaving cars in motion does not make them any the less risks which they have no right to lay at the door of railroad companies. No company can use effectively coercive powers to keep passengers from doing such things. All persons of sound mind must be held responsible for knowledge of the usual risks of such traveling. Every one is supposed to know that in jumping from a vehicle running six miles an hour or much less he stands a good many chances of falling or being unable to fully control his movements, and that falling near a train is always dangerous. No doubt every one who tries such an experiment persuades himself that he will escape, but it is impossible to suppose that any one of common sense does not know that there is danger. It is true that there are circumstances where it is not negligence to take a choice of risks or where an act is done without freedom of choice. But the common sense of mankind teaches us that no one has a right to risk life or limb merely to avoid inconvenience. Upon the facts in this case no one can doubt that the railway agents were wrong in not stopping at the station. If put to any inconvenience by being carried further, Bangs had a legal remedy for it. No doubt the vexation and anxiety would lead to some trouble of mind, but they cannot be held sufficient to justify running into bodily danger. See "Boarding and Leaving Railway Cars in motion," 23 Alb. Law Jour. 124, and note, 37 Am. Rep. 384.

SEVERAL fast locomotives have recently been placed on the Bound Brook route between New York and Philadelphia. One of them, it is stated, made a twenty-five mile run at the rate of seventy miles an hour; another did the same distance at the rate of seventy-nine miles, and a third, with a light train and over a short and very level stretch of road, made two miles at the rate of eighty-four miles an hour.



# AMERICAN Railroad Journal

ESTABLISHED 1881.  
PUBLISHED WEEKLY BY THE  
AMERICAN RAILROAD JOURNAL CO.,  
284 Pearl Street, cor. Beekman, New York.

Subscription, per annum.....	\$5 00
"    six months.....	3 00
"    three months.....	1 75
Foreign subscription, per annum (in- cluding postage).....	6 00
Foreign subscription, six months (in- cluding postage).....	3 50
Single copies.....	10

Subscribers are requested to report to our office any irregularity in receiving the JOURNAL.

Contributed articles relating to Railroad matters generally, Mining interests, Banking and Financial items, Agricultural development, and Manufacturing news, by those who are familiar with these subjects, are especially desired.

Payments for advertising and subscriptions should be made by check payable to order of the Treasurer.

Mr. FREDERIC ALGAR, Nos. 11 and 12 Clements Lane, Lombard Street, London, E. C., England, is the authorized European Agent for the JOURNAL.

New York, Saturday, April 8, 1882.

Entered at the Post Office at New York City as Second-Class Mail Matter.

## THE DEFEAT OF THE REAGAN BILL.

THE defeat of the act for the regulation of inter-State commerce, known as the Reagan bill, has been for some time a foregone conclusion. It first passed the House of Representatives in 1878, and since that time the question of regulating railroad transportation by federal and State authority has been discussed and rediscussed until the importance of the subject has become thoroughly recognized.

Out of the vigorous threshing some few grains of wheat have resulted. The sum of the recent exhaustive hearings, given upon the subject by the Committee on Commerce, seems to be the resolve of the committee that some legislation on the matter of regulating inter-State commerce should be had. The Reagan bill, although generally adopted by political reformers, is now admitted to be inadequate to meet the requirements of the case. It is realized that all legislation touching inter-State traffic must be carefully studied and critically examined, not only by good lawyers, but by railroad experts as well.

The Reagan bill formulates the old cry of anti-discrimination. Its aim is to compel railroads engaged in inter-State commerce to make their charges the same to all customers for the service, to discriminate against nobody, never to charge more for a shorter than for a longer distance, to avoid all pools or combinations, and to have a fixed schedule of rates which could not be changed without due notice. The several provisions of the act relate mainly to the enforcement of these pro-

visions, but strange to say no special agency is named to secure such enforcement.

The defects in the bill are not so much legal objections as common sense ones. Mr. McVEIGH's plea that railroads are purely private property, and as such not subject to legislative control, is too antiquated to deserve mention. It has been decided by nearly if not quite every State in the Union, that the privileges that have been granted to railroads have given them such a public nature that State or National government has ample authority to subject them to such regulations as may be necessary to protect the people at large.

Another legal objection advanced by Mr. McVEIGH, that the power to regulate inter-State commerce applies solely to transportation by canal and river, seems to us without much weight. He thinks that the intention of the framers of the constitution was to prevent the States from making unjust discrimination within their own borders. Granted that the constitutional provision was not designed with direct reference to railroads, it must have contemplated transportation from State to State, for without that there could be no inter-State commerce. But the constitutional provision has been distinctly held to apply to inter-State transportation by canal and by river, and it is difficult to see what different principle is to apply to railroads.

Mr. McVEIGH's suggestion, that mere publicity will rectify grievances, was simply ludicrous. A competent national commission is needed, but it can accomplish little, if anything, unless it has power to do something else besides investigating.

One legal objection to the bill that is fatal is that it proposes to deal simply with railroads, and to take no notice of transportation by canals and rivers. This objection could have been remedied by amendment, but Mr. BLANCHARD, of the Erie Railway, and commissioner, with no difficulty made it plain to the House Committee having the bill in charge that the prohibitions asked for in the bill were for the most part impracticable. The commissioner of the trunk lines put with great clearness the reasons that justify certain kinds of discriminations. The competition between long and short lines and between rail and water lines, often compels lower rates for through traffic than could be endured for local traffic. Again, the cost of service, quantity of freight carried, and convenience of delivery, fast or ordinary time freight, the make up of trains, the location of stations on the line, are factors that must be considered in estimating cost of carriage. The prohibition of pooling would ensure a war of rates that would eventually kill the smaller

roads and throw the business into the hands of a few larger systems.

The Reagan bill after four years of discussion is undoubtedly dead. The necessity of some kind of legislation is apparent, and the most feasible plan that we have seen is that of Mr. CHAS. FRANCIS ADAMS, which provides for the appointment of a national commission, who are to investigate the matter thoroughly, and report from time to time such further bills as may become necessary. The evils must first be clearly pointed out, and then remedied as far as possible, due regard being paid to railroads and people alike.

## National Bank Taxation.

A DECISION of considerable importance was rendered by the United States Supreme Court at Washington on the 3d inst., in the case of the Board of Supervisors of the county of Albany, New York, vs. Edward N. Stanley, error to the Circuit Court of the United States for the Northern District of New York. This action was brought by the defendant in error, a citizen of the State of Illinois, as assignee of certain stockholders of the National Albany Exchange Bank to recover taxes to the amount of \$62,000, forcibly collected from said stockholders and paid into the treasury of the county of Albany upon assessments made in the years 1873 to 1878, both inclusive. It was maintained on behalf of the stockholders in the Court below that the taxes in controversy were illegally assessed and collected, because the law of the State of New York (chapter 761, of 1866) under which such assessment and collection were made, violated the restriction imposed on such assessment and taxation by section 5,219 of the United States Revised Statutes, in that it did not permit the shareholder to deduct the amount of his debts from the valuation of the shares of stock owned by him in ascertaining the amount for which the shares should be taxed. It was therefore void so far as related to shares of stock in national banks. This view of the case was sustained by the Court below and judgment was rendered in favor of the stockholders. The decision of the Court is as follows:—

This Court holds that the invalidity of a part of the State law does not necessarily invalidate it *in toto*; that if the valid and invalid parts of a statute are capable of separation only the latter are to be disregarded. In the present case the New York State law of 1866, as construed by the Court of Appeals, is in conflict upon a single point with a federal statute; as far as that point is concerned it is invalid, but in other respects it must be held to be operative. If the plaintiff in this case had asked to have his debts deducted from the assessed valuation of his bank shares in the computation of his tax, and if his request had been refused upon the ground that such deduction was prohibited by the State law of 1866, then he would have been entitled to relief, because his grievance would have been a direct result of the invalid provisions of the State act. That, however, is not the present case.

It does not appear from the findings that any shareholder for whose relief this suit is brought, with the exception of C. P. Williams, ever asked to have his indebtedness deducted from his assessment or had any such indebtedness to be deducted. Their cases, therefore, are covered not by the invalid, but by the valid part of the State law. It follows from these considerations:—

*First*—That the assessors had authority, under the valid part of the act of the New York Legislature of 1866, to assess national bank shares.

*Second*—That where no debts of the owners existed to be deducted the assessment was valid and the tax paid under it a valid tax.

*Third*—That the assessing officers acted within their authority in such assessment so long as they were not notified in some proper manner that the shareholder owed just debts which he was entitled to have deducted. If they then proceeded in disregard of the act of Congress the assessment would be erroneous, and the case of Williams vs. Weaver shows how the error might be corrected.

The judgment of the Court below is reversed and the cause remanded, with directions to enter a judgment upon the finding of facts for the plaintiff on the seventh count for the amount of the tax paid by Williams, with interest, and on all the other counts for the defendants. Opinion by Justice Miller.

### CONSTRUCTION.

WORK on the Pemigewasset Valley Railroad in New Hampshire is progressing.

THE new Philadelphia and Reading Railroad branch line between Shamokin and Sunbury has been located by the surveying parties.

THE Montreal and Sorel Railway was completed on the 1st inst., and the event was celebrated by an excursion trip to Montreal.

THE Mexican Government has accepted the Mexican Central Railroad, extending from El Paso del Norte south to Chihuahua. The first locomotive for this road reached Celaya, Mexico, on the 3d inst.

MESSRS. Langdon & Shepard, the new contractors on the Canadian Pacific Railway, are making arrangements for the speedy prosecution of the work. Track-laying will be immediately resumed at Flat Creek, from which point it is expected that 50 miles of rail will be laid by the first of May.

THE completion of the Russian Railway for the trans-Caspian country is now looked upon as a question only of time. Some weeks ago in Moscow a meeting of leading merchants was held to consider the subject of the road, and it was the general sentiment that the advantages to be derived from it by the Russian trade would be immense.

WORK was commenced on the 31st ult., at Connellsville, Penn., putting in the slope stakes for the new Pittsburgh and Atlantic Railroad Company, which is designed to connect the coke region extension of the Pittsburgh and Lake Erie Railroad and the Reading Railroad. The work of grading will be commenced immediately.

THE Fitchburg Railroad Company has com-

menced the construction of a lumber storage shed, some 316x50 feet, upon the old State Prison land in the Charlestown District. It has also upward of 400 men at work upon the Vermont and Massachusetts Division, constructing second tracks, &c. The work of improving its freight terminals between the Lowell and Eastern railways in Somerville is also being pushed ahead vigorously.

THE contract for the new municipal loan of Havana, Cuba, and for the construction of the Water Works to supply the entire city with water was awarded on the 29th ult. to the firm of Lyles & Gibson of this city, and Daniel Runkle of New Jersey. The contract price is stated at \$9,200,000. The works will be built on the aqueduct system and planned somewhat after the New York works. The water will be brought from mountain springs, about six miles from Havana, to a central reservoir, from which it will be distributed over the city.

A RAILROAD is now in course of construction in Brazil by French capitalists, who received from the Government concessions which are quite encouraging. They are guaranteed six per cent upon the cost of the road, and should the dividends exceed eight per cent, the amount in excess is to be divided between the company and the State until the latter is reimbursed for the guaranty it may have paid, but not until the dividends reach twelve per cent has the Government any right to regulate the rates charged for transportation. The right is reserved to take the railroad at a fair valuation at the expiration of thirty years.

### ORGANIZATION.

THE directors of the American Steamship Company, elected in Philadelphia on the 3d inst., are: Henry D. Welsh, president; John Price Wetherill, D. B. Cummins, N. Parker Shortridge, Strickland Kneass, William D. Winsor, G. B. Roberts, Henry C. Butcher, J. N. DuBarry, Joseph W. Lewis and Edmund Smith.

At a meeting of the stockholders of the Junction Railroad Company held in Philadelphia on the 3d inst. the following Board of Directors was elected: Isaac Hinckley, George B. Roberts, Henry M. Phillips, Samuel M. Felton and Franklin B. Gowen. Isaac Hinckley was elected president, John C. Sims, Jr., secretary, and W. C. Fraley treasurer.

THE following gentlemen were elected directors of the Denver and Rio Grande Railway Company, at the annual meeting of the stockholders held at Colorado Springs, Col., on the 3d inst., viz: William J. Palmer, William A. Bell, Charles T. Worishoffer, D. C. Dodge, Lyman K. Bass, H. A. Risly, A. Engler, C. B. Lambor, and J. W. Gilluly.

THE directors of the Cincinnati and Muskingum Valley Railroad Co., elected on the 28th ult., are: George B. Roberts, Philadelphia; D. S. Gray, Columbus, Ohio; Charles Moran, New York; Thomas D. Messler, Pittsburg; James Buckingham, M. Churchill and W. A. Graham, Zanesville, Ohio. The Board elected Thomas D. Messler, president and W. F. Black secretary.

THE directors of the Staten Island Railroad Company, elected on the 4th inst., are: Jacob

H. Vanderbilt, Louis M. Myer, B. Kreischer, Joseph Britton, Charles A. Canavello, James McNamee, Nathaniel Marsh, William King, George P. Ockershausen, J. H. Vanderbilt, Jr., George F. Kreischer, John W. Mersereau and James J. Winant. Jacob H. Vanderbilt was elected president of the Board.

THE stockholders of the Chicago and Alton Railroad Company, at their annual meeting in Chicago on the 3d inst., elected the following directors to serve for three years: John Crerar, Lorenzo Blackstone and John K. Mitchell; and Morris K. Jesup was elected to fill a vacancy. At a subsequent meeting of the directors T. B. Blackstone was elected president, and Charles H. Foster secretary and treasurer.

THE following gentlemen were chosen directors of the Panama Railroad Company on the 3d inst.: T. W. Park, president; Charles G. Francklyn, J. G. McCullough, D. O. Mills, Joseph Ogden, William B. Dinsmore, Thomas Maddock, George Garr, R. W. Thompson, Jesse Seligman, E. P. Fabbri, J. W. Ellis, Theodore J. De Sabla. Messrs. Seligman, Fabbri, Ellis and De Sabla represent the Panama Canal Company.

At the annual meeting of the St. Louis, Jacksonville and Chicago Railroad Company, held in Chicago on the 3d inst., the following directors were elected: George Strout, T. B. Blackstone, John Crerar, Charles D. Hodges, Josiah Sawyer, N. W. Green and L. E. Worcester. The officers are: President, George Strout; secretary, W. J. Bryson; treasurer, T. B. Blackstone. John Crerar was also elected president of the Chicago and Joliet Railroad and the Mississippi River Bridge companies.

THE directors of the Mexican Central Railroad Company, elected at the annual meeting of the stockholders held in Boston on the 3d inst., are: Thomas Nickerson, William Ruth, Charles J. Paines, Frank Morrison, Royal M. Pulsifer, Theodore Nickerson, Albert W. Nickerson, Levi C. Wade, A. B. Lowrie, Benjamin B. Cheney, Isaac T. Bart, Thomas Dana, Robert E. Symon and Frederick L. Ames, of Boston; Rudolph Pink, Sebastian Comacho and Ramon G. Guzman, of Mexico; for the Mexican Government, Felip Beriozabal and Miguel Anza of Mexico.

### INCORPORATION.

A CHARTER has been filed at Austin, Texas, by the El Paso and White Oak Railroad Company, capital stock \$500,000, to build and operate twenty miles of road between El Paso and some points on the boundary line between Texas and New Mexico.

THERE has been a company formed, and it has been granted a charter, to run street cars through McKeesport, Penn. We are informed that they will run from Means-town, on Fifth street to Market, and further on Market to Edgehill. The surveyers are already at work laying out the proposed route.

ARTICLES of incorporation have been filed by the Marshall & Northwestern Narrow-gauge Railroad Company at Austin, Texas; capital stock, \$665,000, with right to increase. The road is to run from Marshall to Mt. Pleasant, through Harrison, Morris, Camp and Titus



counties, and tap the Texas and St. Louis road.

THE Wheeling, West Va., Register says that the South Pennsylvania Railroad is to run from Harrisburg via Bedford, West Union, Connellsville and Waynesburg to Wheeling. Articles of association have been filed with the Secretary of State of West Va. and will be filed with the clerks of the various counties. Fourteen corps of engineers are at work, and another corps started from Wheeling on the 1st inst.

THE Kentucky Legislature has passed a bill chartering a company to build a canal around the entire city of Louisville, a distance of over six miles. There will be a fall of thirty feet the whole way, thus affording an unsurpassed water power for the driving of machinery, which will afford superior advantages and safety for transportation purposes. The authorized capital of the company is \$6,000,000, but \$1,000,000 will be sufficient for an organization. Hons. E. D. Standiford, Proctor Knott, Isaac Caldwell, and Mr. S. T. Suit are among the incorporators.

THE Mexican International Railway Company was incorporated at Hartford, Conn., on the 30th ult. The incorporators named are Oliver Hoyt, A. N. Hawley, Henry B. Plant, Charles Crocker, Benjamin Clark, Thomas W. Pierce, R. T. Colburn, E. H. Pardee, Frank Storrs, and James B. Haines. The Company is authorized to build, lease, and operate railroads and steamboat lines anywhere in the world outside of the State of Connecticut. The capital stock is \$10,000,000 divided into 100,000 shares, and may be increased or diminished at will. Organization may be made and business begun whenever \$1,000,000 has been subscribed and \$10,000 paid in. The Company, although prohibited from owning or leasing any railroad within the State, is required to keep an office in New Haven. It is said to be formed for construction purposes in connection with certain pending Mexican railway schemes. A mate to this bill is the Plant Investment Company, also of New Haven, and also incorporated on the 30th ult. It is allowed a capital of \$10,000,000 and is authorized to build and equip railroads and telegraph and telephone lines outside the State.

#### CONSOLIDATION.

THE Toronto and Nipissing Railway has been amalgamated with the Midland Railway system.

THE Lehigh and Hudson River Railroad and the Warwick Valley Railroad have consolidated, and will hereafter be operated as one road under the name of the Lehigh and Hudson River Railroad.

THE sale of the North Shore Railroad of Long Island to the Long Island Railroad Company has been completed, the price paid being \$61,250. Trains will begin running through to Great Neck in two or three days.

THE Chicago, Milwaukee and St. Paul Railway Company has just absorbed the Hastings and Stillwater, the Illinois and Wisconsin, the Rockford, Beloit and Iowa, and the Eastern railroads. All are short lines, but their value is over \$1,000,000.

At a meeting of the directors of the Memphis

and Charleston Railroad Company a plan for consolidation with the East Tennessee, Virginia and Georgia Railroad Company was favored, and the stockholders have been called to meet on June 22 to confirm the proposed consolidation.

#### PERSONAL.

D. H. CONKLIN has been appointed receiver of the Illinois Midland Railroad.

M. HARGES, of the banking firm of Drexel, Harges & Co., Paris, has been decorated with the cross of the Legion of Honor by the French Government.

WE give elsewhere from the Steubenville Republican a touching poem entitled "Only a Brakeman." It was written on the occasion of the death of a brother of the author, and is worthy a place in every scrap-book in the land.

At the annual meeting of the stockholders of the International and Great Northern Railway Company, held at Palestine, Texas, on the 3d inst., the following officers were elected: Jay Gould, president; R. S. Hayes and T. W. Pearshall, vice-presidents; D. H. S. Smith, secretary and treasurer; H. M. Hoxie, general manager.

THE officers of the St. Louis and San Francisco Railway Company, elected on the 4th inst., are: President, Edward F. Winslow; vice-president and general manager, Charles W. Rogers; second vice-president, James D. Fish; treasurer and secretary, T. W. Lillie; assistant treasurer, Geo. Butler.

#### Bituminous and Anthracite Products in Pennsylvania.

HON. MILES S. HUMPHREYS, Chief of the Bureau of Labor Statistics, has issued his report for 1881. The following is a recapitulation of the bituminous tables:—

Total number of collieries.....	382
Average number of days worked during the year.....	217.07
Total number of persons employed.....	35,530
Total amount paid in wages during the year.....	\$14,540,057 50
Total product of bituminous coal for the year ending December 31, 1881 (tons).....	15,692,923.12
Total number of coke ovens.....	6,640
Total production of coke for the year (tons).....	2,176,403.08
Average amount per ton paid in wages.....	\$0 92.05
Average amount of coal produced to each employe.....	442.47

The anthracite business is recapitulated as follows:—

Total number collieries.....	319
Average number of days worked during the year.....	75.159
Total number employes.....	275.01
Total amount paid in wages during year.....	\$27,454,781 36
Total production anthracite for 1881 (tons).....	27,929,128.10
Average amount per ton paid in wages.....	1.0655
Average amount coal produced per employe.....	373.14

THE steamer which is being built at the yards of the Harlan & Hollingsworth Co., Wilmington, Del., to run from Chestertown, Md., to Baltimore, via Chester River, will be completed in a few weeks. The Avalon, which was recently launched, is receiving her machinery, and will be completed about the 1st of May. The ferryboat Baltimore, built for the Pennsylvania Railroad, is receiving her machinery in New York, and another boat for the same Company and on the same model as the Baltimore is being built at the Harlan & Hollingsworth Company's yards.

#### Only a Brakeman.

BY EVERETT A. BUDD.

Only a brakeman! killed by the train;  
Only a brakeman! by accident slain.  
Onward, rush onward, no time for delay;  
Blow the shrill whistle and hasten away.

Only a brakeman! cries the wild throng;  
Only a brakeman! been called by Death's gong.  
Why should the eye glisten? Why should the heart ache?

'Tis only a brakeman who's set his last brake.

Only a brakeman! is flashed through the air;  
Only a brakeman! for his body prepare;  
On the morrow 'tis shipped as poor common freight—  
As only a brakeman who has gone to his fate.

Only a brakeman! the editors write;  
Only a brakeman! 'twas late in the night,  
He was doing his duty—the train broke in two,  
When down to his death, the brakeman fell through.

Only a brakeman! but the pride of some heart;  
Only a brakeman! but in some busy mart  
Are eyes that are weeping, and homes that are hushed,  
Because a poor brakeman was yesterday crushed.

Only a brakeman! but a true-hearted boy,  
Only a brakeman! but some mother's joy,  
For whom there's no muffle for the coarse iron wheel  
That grinds on her heart as on the grooved steel.

Defence, Ohio.

CLARA LOUISE KELLOGG will not sing any more after she gets married. She will, however, lecture occasionally.

THERE are only six charcoal furnaces in Great Britain, and they all belong to one firm. The annual yield of charcoal iron is about 3,000 tons.

WOOD piled in a tank and covered with quicklime which is gradually slacked with water is said to acquire great hardness and consistency after the lime has acted upon it for a week or more.

IN consequence of the stringency in the money market a great many eggs, which were being held for better prices, have been sold, causing a break in prices. The hens, who had been bulls for some months back, watched the thing for a time, hoping for an appreciation in values, but finally, becoming panicky, commenced unloading rapidly, causing a still further depreciation.

THE result of the winter's hog-packing in the West shows a total of 5,747,760 hogs, of an average net weight of 210 1-6 pounds, and an average yield of lard of 36.44 pounds. The gain over last year in the average net weight per hog is 2.45 pounds and in lard 4.09 of a pound. The decrease in the number packed was 1,171,696, or nearly 17 per cent, while the decrease in the aggregate weight was nearly 16 per cent.

THE Louisville and Nashville Railroad Company have received seventy-five new fruit cars, combining in their construction all modern improvements. They are models in their way, with perfect ventilation in sides, end and top. These cars are to run on fast freight and, if necessary, on passenger trains between New Orleans, Pensacola, Mobile and Cincinnati, bringing to market the earliest fruits and vegetables from the far sunny South, in the quickest time and in fresh condition.

### The Debt Statement.

MR. JOHN M. CARSON, clerk of the Committee on Ways and Means, has prepared an analysis of the debt statement for March for the use of the committee, of which the following are the material parts:—

The statement of the public debt for March shows a decrease for the month of \$16,462,947, and for the nine months of \$114,332,290. In September last the reduction was \$17,500,000 in round numbers, but with this exception the reduction for March is the largest monthly reduction we have had for several years. Since March 1 the interest-bearing debt has decreased \$19,372,900 over all. Of the \$20,000,000 bonds included in the 107th call about \$5,500,000 have not yet been presented for payment. During the next six weeks three other calls, aggregating \$35,000,000 will mature, and it is probable that the Secretary will call for the surrender of another \$20,000,000 within a few days.

On August 31, 1865, the interest-bearing debt of the United States was at the highest point—viz, \$2,381,830,295, and the annual interest charge thereon was nearly \$151,000,000. The interest-bearing debt is now \$1,514,752,700, and the annual interest charge about \$61,000,000. Thus in a period of sixteen years we have reduced the bonded debt \$866,787,595, effecting thereby an annual saving in the interest charge of about \$90,000,000. In the same period there was a reduction in the non-interest-bearing debt, represented mostly by United States currency, of \$163,377,564, making the aggregate reduction since August 31, 1865, over \$1,000,000,000, the exact figures being \$1,030,065,149. The number of days, including Sundays, embraced within the period from August 31, 1865, to April 1, 1882, is 6,056, and the regularity and extent of the reduction in the public debt during the period named will be more fully appreciated when it is known that the decrease has averaged over \$142,000.

The Treasurer's statement of assets and of liabilities for the month shows a net increase in silver dollars over February of about 3,750,000, or nearly 500,000 in excess of the number of these pieces coined during March. The outstanding silver certificates show a decrease of \$319,000 and the Treasury of course gained that amount of this form of currency. The number of standard silver dollars now on hand is 78,178,588, and against this amount there is outstanding \$59,234.40 in certificates, which leaves the Treasurer the actual owner of 18,755,143 of the silver dollar pieces now on hand.

The fractional silver coin shows an increase of about \$300,000 during the month. In gold coin and gold bullion there is a decrease of about \$7,000,000 compared with March 1, which is accounted for by the disbursements during the month on account of called bonds and interest. There is also a decrease of nearly \$3,500,000 in the amount of United States and national bonds and notes on hand, but this is more than balanced by a decrease of \$5,400,000 in the liability of outstanding drafts and transfer checks.

The available cash balance shows an increase of about \$1,100,000, the amount of this fund being \$155,147,339, against \$154,038,382 on March 1.

The total receipts for March show an increase of about \$4,300,000 over the corresponding month of last year, as will be exhibited by the following table:—

	March, 1881.	March, 1881.
Customs.....	\$18,549,755	\$21,084,413
Internal revenue.....	10,111,514	10,001,916
Miscellaneous.....	1,113,572	2,993,227
Totals.....	\$29,764,841	\$34,029,556
Expenditures.....	17,079,142	11,827,856
Surplus.....	\$12,701,699	\$22,201,700

In March, 1881, there was disbursed for pensions about \$8,000,000. The payment of pensions this year was made in February and March, which will explain the apparently large discrepancy between the ordinary expenditures of the two months compared. These amounts do not include interest on the debt. The increase of nearly \$2,000,000 in miscellaneous receipts is explained by the fact that the accumulated profits on coinage for the past several months were covered into the Treasury last month.

### Locomotive Building.

MR. BURNHAM, of the Baldwin Locomotive Works, Philadelphia, having been interviewed, is reported to have said that business with them continues brisk, and that they are turning out work at the rate of fifty engines a month. On the first of the present year they had on their books orders for more than eight hundred locomotives, but the number has since been decreased by deliveries and by orders countermanding and deferring their construction. He regarded the situation as healthful, and thought that business, particularly in their line, is assuming a conservative and better condition. The number of countermanded and deferred orders is not large, and is not more than had been anticipated.

Everything "boomed" about 1877 or 1878, and the business of the building of locomotives became immense, for the railroads were in great need of engines. With the prosperous times, occasioned greatly by the large crops in this country and their failure in Europe, at least \$200,000,000 found their way into this country. New roads were projected and built, and others placed in a condition for the movement of the large increase in the freight business. There was a large amount of idle capital which was invested in railway enterprises, and, taking everything into consideration, the tendency was to "boom" the business of building locomotives. Iron is easier than it was four months ago, and may be said to be on the retrograde, but labor is high. The business with them continues, the works being run on full time, with the full complement of men.

Mr. Burnham stated in conclusion that he saw nothing discouraging in the future, but thought that everything is settling down to a solid business basis. Some of the orders countermanded and those deferred he felt assured would be made good. Last year the firm built 550 engines, and with the other work that they did, it would be safe to say the number exceeded 600. Speculation having ceased to a great extent is, perhaps, one of the causes for the settling down to sound business operations all around.

The Baldwin Locomotive Works will, on November 23 of this year, celebrate the fiftieth anniversary of the successful trial of their first locomotive. This was the "Old Ironsides," built by M. W. Baldwin, on Minor street, near Sixth and Chestnut streets and first tried on the Germantown Railroad. It is recorded that on its first trip it ran at the rate of a mile an hour, and had to be started by pushing. It was subsequently overhauled and slightly remodeled, and could then go thirty miles an hour. The works moved to their present location, at Broad and Hamilton streets, in 1835, and have grown into the largest establishment of the kind in the country.

### Legal Right of Company to Issue Preferred Stock.

In view of the conflicting opinions expressed by the several judges respecting the legal question involved in the Philadelphia and Reading Deferred Bond scheme, it may be of interest to the profession to read the case of *Kent v. Quicksilver Mining Co.*, 78 N. Y. 159, in which a somewhat similar question was involved. The company needing money, obtained it from stockholders by issuing to each one who would pay five dollars per share a certificate of preference entitling him to seven per cent on the sum so paid, annually, out of the earnings, the balance of the net earnings to be equally divided among all the stockholders. Upon the question whether the company had the right to make such an arrangement under its implied power to borrow, FOLGER, Justice, in delivering the opinion of the court, said:

"All the powers which that Company had were given to it by its charter (Laws of 1866, chap. 470, p. 1021), and by the Revised Statutes (vol. 1, pp. 599-600, §§ 1, 2, 3). Thereby it had the usual general powers of a corporation. (See *Angel & Ames on Corporations*, § 110). It had also the peculiar power of holding, improving and working mining lands in California and elsewhere, and of disposing of the product thereof. It had also the power to issue certificates of stock, representing the value of its property, in such form and subject to such regulations as it might from time to time by its by-laws prescribe; and to regulate and prescribe in what manner and form its contracts and obligations should be executed. It is claimed that it had also incidental and implied powers. So it had, as far as permitted by the Revised Statutes, which declare that, in addition to the powers therein enumerated and to those expressly given in its charter, it should not possess nor exercise any except such as should be necessary to the exercise of the powers so enumerated and given: 1 R. S., 600, § 3.

"Plainly a mining corporation, for the exercise of its power of mining in its lands, must have money. Hence, if it has it not, and cannot otherwise readily get it, it must, as necessary to the use of its corporate rights, have the power to borrow it, and in any way, and upon any obligation or security to be given by it, that is not unlawful: *Curtis v. Leavitt*, 15 N. Y. 9. It may borrow it from the stockholders in it, as well as from other parties, and it may



determine and agree to borrow from them only. This corporation was in need of money to carry on its authorized business. It did get money, for that purpose and because of that need, from some of the stockholders in it, and in that instance from some of them alone. If the mode by which that money was got was a borrowing, within the sense which the law and common acceptance give to that term, then the transaction so far would have been lawful, and it would have remained to inquire whether the obligation given was a lawful instrument. But it was not a borrowing. The idea of a borrowing is not filled out unless there is in the agreement therefor a promise or understanding that what is borrowed will be repaid or returned, the thing itself or something like it of equal value, with or without compensation for the use of it in the meantime. To borrow is a reciprocal action with to lend; and to lend or to loan, say the dictionaries, is the parting with a thing of value to another for a time fixed, or indefinite yet to have sometimes an ending, to be used or enjoyed by that other, the thing itself, or the equivalent of it to be given back at the time fixed, or when lawfully asked for, with or without compensation for the use as may be agreed upon. In this transaction with some stockholders that corporation had not the right, nor was it under the liability to ever pay back the five dollars per share furnished by them to it; that was not named in the terms of the obligation given, nor was it contemplated in the negotiation and bargain. The stockholder had not, by the scope of his bargain, nor by the terms of the written evidence of it, any right ever to ask for repayment of the money furnished by him. In short, there was not formed thereby the relations of debtor and creditor. The stockholder parted forever with the money furnished, inasmuch as the charter of the Company is perpetual, and the Company made a perpetual charge upon its net earnings. Though there was a compensation fixed for the use of the money, and though it was to take the form of a yearly payment, and at a rate the same as the then lawful rate of interest, yet we cannot conceive that the transaction was a loan and borrowing of money with a compensation for the use of it. It had been, though the compensation was great for the sum furnished, yet it was not a violation of the usury laws of which the corporation could avail itself (Laws of 1850, chap. 172); and the courts might not overhaul it, save, perhaps, as an unconscionable and extortionate agreement (1 Story Eq. Juris., §§ 246-331), as to which we will speak again before the close. The transaction is not to be looked upon as other than a preference of one class of stockholders to another, as giving to the first class a perpetual, inextinguishable prior right to a portion of the earnings of the Company before the other class might have anything therefrom. It was none other than the creation of a 'preferred stock.'

Cows on the prairies get accustomed to the noise of locomotive bells and whistles, and do not always clear the track until thrown off by the cowcatcher. A patented device is described in the *Scientific American* for squirting hot water twenty rods ahead. It is calculated that this would stimulate the laziest into action.

### Statement of the Public Debt of the United States, April 1, 1882.

DEBT BEARING INTEREST.		
	Amount Outstanding.	Accrued Interest.
6 per cent loan, 1861-'81, continued at 3½ per ct.	\$62,045,300 00	\$542,896 37
6 per cent loan 1863-'81 continued at 3½ per ct	47,855,700 00	418,737 37
5 per cent funded loan of 1881.....	401,503,900 00	2,342,106 08
4½ per cent funded loan of 1891.....	250,000,000 00	937,500 00
4 per cent funded loan of 1907.....	738,805,450 00	7,388,054 50
4 per cent refunding certificates.....	542,350 00	5,423 50
3 per cent navy pension fund.....	14,000,000 00	105,000 00
Aggregate of debt bearing interest.....	\$1,514,752,700 00	\$11,739,717 82
Interest due and unpaid.....		1,408,663 40
DEBT ON WHICH INTEREST HAS CEASED SINCE MATURITY.		
	Amount Outstanding.	Interest due & unpaid.
4 to 6 per cent. old debt, 1837.	\$57,665 00	\$64,174 81
5 per cent. Mexican indemnity stock, 1846.....	1,104 91	85 74
6 per cent. bonds, 1847.....	1,250 00	22 00
6 per cent. bounty land scrip, 1847.....	3,275 00	213 06
5 per cent. Texas indemnity bonds, 1850.....	20,000 00	2,945 00
5 per cent. bonds, of 1858.....	8,000 00	.....
5 per cent. bonds, of 1860.....	10,000 00	600 00
6 per cent. 5-20 bonds, 1862, called.....	370,550 00	8,402 19
6 per cent. 5-20 bonds, June 1864, called.....	58,650 00	170 95
6 per cent. 5-20 bonds, 1865, called.....	71,050 00	18,712 88
5 per cent. 10-40 bonds, 1864, called.....	439,900 00	108,843 67
6 per cent. Consol. bonds, 1865, called.....	390,100 00	14,729 86
6 per cent. Consol. bonds, 1867, called.....	1,035,250 00	192,188 24
6 per cent. Consol. bonds, 1868, called.....	294,850 00	23,305 62
6 per cent. loan, Feb. 8, 1861, matured Dec. 31, 1880.....	90,000 00	5,190 00
5 per cent. funded loan 1881, called.....	1,883,750 00	36,983 35
Oregon War Debt, March 2, 1881, matured July 1, 1881.	122,650 00	5,227 50
6 per cent loan of July 17 and Aug. 5, 1861, matured June 30, 1881.....	762,150 00	21,732 00
6 per cent loan of July 17 and Aug. 5, 1861, continued at 3½ per cent, matured Dec. 24, 1881, and Jan. 29, 1882, called.....	6,238,200 00	33,676 11
6 per cent. loan of March 3, 1863, matured June 30, 1881.	245,450 00	4,740 00
1-10 to 6 per cent. Treasury notes, prior to 1846.....	82,525 35	2,668 06
1-10 to 6 per cent. Treasury notes, 1846.....	6,000 00	206 00
6 per ct. Treasury notes, 1847.....	950 00	57 00
3 to 6 per cent. Treasury notes, 1857.....	1,700 00	99 00
6 per ct. Treasury notes, 1861.....	3,000 00	364 50
7 3-10 per cent. 3 years' Treasury notes, 1861.....	16,300 00	1,104 43
5 per cent. 1 year notes, 1863.....	42,305 00	2,127 35
5 per cent. 2 year notes, 1863.....	33,950 00	1,707 30
6 per ct. compound interest notes, 1863-64.....	222,930 00	45,516 05
3-10 per cent. 3 years' Treasury notes, 1864-65.....	140,150 00	4,590 60
6 per cent. certificates of indebtedness, 1862-63.....	4,000 00	253 48
4 to 6 per cent. temporary loan, 1864.....	2,960 00	244 19
3 per cent. certificates, called.	5,000 00	394 31
Aggregate of debt on which interest has ceased since maturity.....	\$12,665,615 26	\$612,275 15
DEBT BEARING NO INTEREST.		
Demand notes, 1861-62.....	\$59,875 00	
Legal tender notes, 1862-63.....	346,681,016 00	
Certificates of Deposit.....	11,140,000 00	
Coin certificates, 1863.....	5,166,920 00	
Silver certificates, 1873.....	68,355,370 00	
Unclaimed interest.....		6,536 51
Fractional currency, 1862, 1863 and 1864 \$15,440,892 67		
Less amount estimated as lost or destroyed, act of June, 21, 1879.....	8,375,934 00	
		7,064,958 67
Aggregate of debt bearing no interest.....	\$438,468,039 67	\$6,536 51

## RECAPITULATION.

	Amount Outstanding.	Interest.
Debt bearing interest in coin, viz:		
Bonds at 6 per cent., continued at 3½ per cent.	\$100,901,000 00	
Bonds at 5 per cent., continued at 3½ per cent.	401,503,900 00	
Bonds at 4½ per cent.....	250,000,000 00	
Bonds at 4 per cent.....	738,805,450 00	
Refunding certificates.....	542,350 00	
Navy pension fund, 3 p.c.	14,000,000 00	
	\$1,514,752,700 00	\$13,063,017 48
Debt on which interest has ceased since maturity.	12,665,615 26	612,275 15
Debt bearing no int., viz:		
Old demand and legal-tender notes.....	\$346,740,851 00	
Certificates of deposit.....	11,140,000 00	
Coin & silver certificates.....	73,522,290 00	
Fractional currency.....	7,064,958 67	
	\$438,468,039 67	
Unclaimed interest.....		6,536 51
	\$1,965,886,354 93	\$13,671,829 14
Total debt, principal and interest to date, including interest due and unpaid.....		\$1,979,558,184 07
AMOUNT IN TREASURY.		
Interest due and unpaid.....		\$1,313,299 66
Debt on which interest has ceased.....		12,665,615 26
Interest thereon.....		612,275 15
Gold and silver certificates.....		73,522,290 00
U. S. notes held for redemption of certificates of deposit.....		11,140,000 00
Cash balance available March 1, 1882.....		154,038,281 65
		\$253,291,761 72
Debt, less am't in Treas'y Mar. 1, 1882.....		\$1,726,266,422 35
Debt, less am't in Treasury Feb. 1, 1882.....		1,742,729,369 10
Decrease of debt during the month.....		\$16,462 00
Decrease of debt since June 30, 1881.....		\$16,462,946 75
BONDS ISSUED TO THE PACIFIC RAILROAD COMPANIES, INTEREST PAYABLE IN LAWFUL MONEY.		
	Amount Outstanding.	Accrued Interest not paid.
Central Pacific bonds, 1862-64.....	\$25,885,120 00	\$388,276 80
Kansas Pacific bonds, 1862-64.....	6,303,000 00	94,545 00
Union Pacific bonds, 1862-64.....	27,236,512 00	408,547 68
Cent. Branch Union Pacific bonds, 1862-64.....	1,600,000 00	21,000 00
West'n Pacific Bonds, 1862-64.....	1,970,560 00	29,558 40
Sioux City & Pacific bonds, 1862-64.....	1,628,320 00	24,424 80
Totals.....	\$64,623,512 00	\$968,352 68
Interest paid by the United States, \$53,405,977.38; interest repaid by transportation of mails, &c., \$14,887,476.95; interest repaid by cash payments: 5 per cent. net earnings, \$655,198.87; balance of interest paid by United States, \$37,863,301.56.		
The foregoing is a correct statement of the public debt, as appears from the books and Treasurer's returns in the Department at the close of business, March 31, 1882.		
CHARLES J. FOLGER, Secretary of the Treasury.		

ACCORDING to the *Evening Post*, the State of New York is fast becoming the chief petroleum producing center of the country. The product of her oil fields is now 20,000 barrels per day. Alleghany produces 16,000 barrels and Cattaraugus county 4,000 barrels. The production of the State is one-third of the total oil product of America. About one year ago New York produced about one-sixteenth. The putting down of new wells is carried on at a lively rate. There are now 875 wells in the Alleghany field, and it is believed the number will reach 1,600 by the 1st of July.

A CONGRESSMAN not long since introduced a Bill in the U. S. Congress providing for uniformity in the height and position of the couplers and buffers of freight cars. Nothing could possibly be brought into use on railroads that would be more acceptable to train employes and of greater benefit. No less than 2,800 men are reported to have been fatally crushed or seriously crippled in coupling cars during the past year in America.





## London Stock Exchange.

	Closing Prices			
	Mar. 10.	Mar. 11.	Mar. 12.	Mar. 13.
Baltimore & Ohio (sterling).....	111	113	111	113
Central of N. J., \$100 shares.....	93	98	93	98
Do. consol. mort.....	113	115	112	114
Do. Adjustment Bonds.....	104	109	104	109
Do. Income Bonds.....	102	105	102	105
Det., G'd Haven & Mil. Equip bds.....	112	114	109	111
Do. Con. M. sp. c., till '83 aft' r'p. c.....	110	112	108	110
Illinois Central \$100 shares.....	137	139	137	139
Lehigh Valley Cons. mortgage.....	118	122	118	122
Louisville & Nashville mort 6s.....	97	100	98	101
Do. Sink. Fund bds (S. & N. Ala.).....	97	100	96	98
Do. capital stock \$100 shares.....	75	77	75	77
N. Y. Cent. & Hud. R. mt. bds.....	134	137	133	136
Do. \$100 shares.....	133 1/2	134 1/2	133 1/2	134 1/2
Do. mort. bonds (stg.).....	118	120	118	120
N. Y., Lake Erie & West., \$100 shs.....	36 1/2	37	37 1/2	38
Do. 6 p. c. pref. \$100 shares.....	72	74	70	78
Do. 1st Con. Mort. bds (Erie).....	127	129	127	129
Do. do. Funded Coupon bds.....	122	125	123	125
Do. 2d Consol. Mort. bonds.....	95	97	96 1/2	97 1/2
Do. do. Funded Coupon bds.....	90	95	93	96
Do. Gold Income bonds.....	83	92	88	92
N. Y., Pa. & Ohio 1st mort. bonds.....	47	48	47	48
Do. Prior Lien bds (sterling).....	101	105	101	105
Pennsylvania, \$50 shares.....	61 1/2	62 1/2	63	64
Do. Con. Sink Fund Mort.....	115	117	116	118
Philadelphia & Reading \$50 shs.....	29 1/2	29 1/2	29 1/2	29 1/2
General Consol Mortgage.....	115	117	115	117
Do. Improvement Mortgage.....	103	105	104	106
Do. Gen. Mtg. 7 1/2 ex-def'd coup.....	96	98	96	98
Do. Scrip for the 6 def. 1/2 coup.....	96	99	96	99
Pittsb., Ft. W. & Chi. Eq. bds.....	104	106	104	106
St. L. Bridge 1st mort. gold b'd.....	125	127	122	124
Do. 1st pref. stock.....	94	98	95	100
Union Pa. Land Grant 1st mtg.....	116	118	113	115
Wabash, St. L. & P. \$100 shs.....	32	34	32	35
Do. \$100 pref. shares.....	57	59	58	60
Do. gen. mort. bonds.....	84	86	84	86

## AMERICAN RAILROAD JOURNAL.

## Financial and Commercial Review.

THURSDAY EVENING, April 6, 1882.

In the money market this morning the quotation for call loans on stocks was 4@5 per cent, and on United States bonds 2@3 per cent. Prime mercantile paper was 5@6 per cent. In the afternoon the quotation for call loans at the stock exchange was 4@5 per cent. In the last hour, however, the rate advanced to 6 per cent, and at the close stood at 5@6 per cent.

The actual rates for prime bankers sterling were 4.86 1/2 @ 4.86 3/4, and 4.89 1/2 @ 4.89 3/4 with cable transfers 4.90 @ 1/2, and prime commercial bills 4.85 1/2 @ 4.85 1/4. The actual rates for continental bills are as follows: Francs 5.18 1/2 @ 5.17 1/2 and 5.15 @ 5.14 1/2. Marks 94 1/2 @ 95 and 95 1/2 @ 96, and guilders 40 1/2 @ 40 1/4.

By reference to the Public Debt Statement in another column, it will be seen that the total debt of the United States on the 1st inst. was \$1,979,558,184.07, less cash in the Treasury \$253,291,761.72, leaving net \$1,726,266,422.35. The debt has been reduced since the 1st of March \$16,462,946.75, and since 1st of July last \$114,332,389.63. Of the bonded debt \$250,000,000 bears 4 1/2 per cent interest, \$739,347,800 bears 4 per cent, \$511,404,900 bears 3 1/2 per cent, and \$14,000,000 bears 3 per cent. Interest has ceased upon \$12,665,615, and \$438,468,040 bears no interest, being in the form of currency notes, certificates of deposit, and gold and silver certificates. Of the cash in the Treasury \$154,038,281.65 is in excess of current liabilities. In addition to the debt enumerated above there are outstanding \$64,623,512 6 per cent bonds issued to the Pacific Railroads, and known as currency 6s.

The payments from the United States Treasury during March, exclusive of interest and principal of the public debt, were \$5,014,332.73 on account of civil and miscellaneous;

\$3,248,090.72 war; \$838,133.28 navy; \$414,160.36 Indians, and \$2,313,139.40 pensions—total, \$11,827,856.49.

The Secretary of the Treasury issued on the 4th inst. the one hundred and twelfth call for the redemption of bonds of the loan of July 17 and Aug. 5, 1861, continued at 3 1/2 per cent from July 1, 1881. The call is for \$15,000,000, and the principal and interest will be paid at the Treasury on the 7th day of June next, and the interest will cease on that day. The following are the numbers of the bonds: \$50, No. 2,251 to No. 2,465, both inclusive; \$100, No. 15,701 to No. 17,750, both inclusive; \$500, No. 11,101 to No. 11,960, both inclusive; \$1,000, No. 53,501 to No. 55,950, both inclusive; \$5,000, No. 17,101 to No. 17,580, both inclusive; \$10,000, No. 36,671 to No. 38,810, both inclusive; total, \$15,000,000.

From the report of the Comptroller we learn that the total funded debt of the City of New York on the 31st of March was \$135,543,007.07, not including \$6,121,729.40 revenue bonds issued in anticipation of taxes. The amount in the sinking fund for the redemption of the city debt on that day was \$37,089,189.77. During the month of March warrants were drawn against the City Treasury to the amount of \$1,998,221.05, making a total of \$8,231,303.24 during the present year. During January, February, and March stocks and bonds amounting to \$3,946,034.40 were issued. Of this sum \$666,500 was for public works, street openings, and improvements, \$265,000 was for Croton water purposes, \$190,000 was for docks and slips, and \$2,733,100 was for current expenses of the City Government.

The total values of the exports of petroleum products from the United States during February, 1882, were \$2,689,861, and during February, 1881, \$2,524,055. For the eight months ended February 28, 1882, \$34,553,551, and for the same period the preceding year, \$25,363,391.

The total exports from the Sandwich Islands in 1881 were \$6,714,726, and the imports into the Kingdom \$4,547,978. The imports of America goods reached \$3,396,310.

The land sales of the Northern Pacific Railroad, Eastern Divisions, for March, 1882, amounted to 26,387 acres, for \$106,203 an increase over the corresponding month of the previous year of 3,388 acres and \$73,579. The average price this year is \$4 per acre: last year, \$2.51.

The Customs returns at Montreal for the month of March were \$694,370, an increase of \$104,343 over the corresponding month in 1881. Inland Revenue returns, \$106,185, an increase of \$18,369 over the month of March last year.

The annual report of the Sutro Tunnel Company shows that the total receipts for the year were \$351,268.36. The balance on hand at the San Francisco office on March 1, 1882, was \$122.57 and at the Nevada office on February 12, 1882, \$1,879.55.

The gross earnings of the Eastern Railroad for the month of February, 1882, were \$206,218.24 against \$192,164.98 for the corresponding months in 1881, an increase of \$14,053.26. For the five months ending February 28, 1882,

they aggregated \$1,259,792.54, or \$133,237.35 more than for the corresponding five months last year.

The following quotations of sales of railway and other securities, for the week, are in addition to those given elsewhere in our columns:

New York.—Atlantic and Pacific 1st, 97; Am. Dock and Imp. Co., 5s, 97; Atchison, Colorado and Pacific 1st, 98; Boston and New York Air Line pref., 65; Buffalo, New York and Erie 7s, new, 119; Belleville and Southern Illinois 1st, 120; Cedar Rapids, Iowa Falls and Northern 1st, 102; Chicago, St. Paul, Minneapolis and Omaha, 37 1/2; do. pref., 101 1/2; do. consol., 102 1/2; Cedar Falls and Minnesota, 20 1/2; Central Iowa, 34; do. debent. certifi., 74 1/2; do. 1st, 111; Chicago, St. Louis and New Orleans, 71; Columbia and Greenville pref., 86; Chesapeake and Ohio cur. int., 48 1/2; do. 1st, Series A, 100; Chicago, Milwaukee and St. Paul, La C. and Dav. div. 1st, 94; do. Chicago and Pacific West div. 1st, 94; do. Chicago and Pacific div. 1st, 109; do. S. M. div. 1st, 104 1/2; do. South West div. 1st, 105 1/2; Cleveland and Toledo, new, 107; Columbus, Chicago and Indiana Central inc., 53; do. 1st, Trust Co. certifi. ass. sup., 116; Chicago and Eastern Illinois 1st, 91; Cairo and Fulton 1st, 108 1/2; Denver and Rio Grande, 65 1/2; do. 1st, 113; do. 1st consol., 104 1/2; Denver, South Park and Pacific 1st, 104; Detroit, Monroe and Toledo 1st, 121 East Tenn., Virginia and Georgia, 12 1/2; do. pref., 21 1/2; do. 5s, 75; do. inc., 49; Evansville and Terre Haute 1st, 95; Flint and Pere Marquette 1st, 111 1/2; Green Bay, Winona and St. Peter, 11; do. do. 1st, 82 1/2; Gulf, Colorado and Santa Fe 1st, 108 1/2; Houston and Texas Central 1st, Western div., 108; Indiana, Bloomington and Western, 42; do. 1st, 89; Indianapolis, Decatur and Springfield 1st, 100 1/2; International and Great Northern 1st, 106 1/2; do. coupon 6s, 84; Kansas Pacific 1st consol., 104; do. 6s, 111 1/2; do. Denver div. 6s, ass., 109 1/2; Keokuk and Des Moines, 18; do. 1st, 102; Lafayette, Bloomington and Muncie 1st, 103 1/2; Lehigh and Wilkesbarre consol. ass., 105; Long Island, 55; Louisiana and Missouri River, 20; do. 2d, 110; Lake Erie and Western, 33; do. 1st, 104; do. inc., 55; Louisville, New Albany and Chicago, 67; do. 1st, 103; Louisville and Nashville Gen'l mort. 6s, 100; do. St. Louis div. 6s, 105; do. N. O. and Mobile div. 1st, 95; do. Cecilian Branch 1st, 107; Manhattan Beach, 36; do. 7s, 85; Mobile and Ohio, 27; do. 1st, 110; do. 1st debent., 84; Missouri, Kansas and Texas, 33; do. gen'l mort. 6s, 82; do. consol., 105; do. 2d, 65; Missouri Pacific, 96 1/2; do. 3d, 114; Memphis and Charleston, 57; Marietta and Cincinnati 1st pref., 13; do. 2d pref., 8; Milwaukee, Lake Shore and Western, 50; do. 1st, 101; Minneapolis and St. Louis 1st, 115 1/2; do. Iowa ext., 112; Michigan Southern S. F., 109; Metropolitan Elevated 2d, 94; Michigan Central 5s, 97; do. 8s, S. F., 105 1/2; Nashville, Chattanooga and St. Louis, 68 1/2; do. 1st, 115 1/2; New York, Ontario and Western, 27 1/2; Norfolk and Western 20; do. pref., 53 1/2; Northern Pacific 1st, 100 1/2; New Orleans Pacific 1st, 86 1/2; Ohio Central, 17 1/2; do. 1st, 96 1/2; do. inc., 39; Ohio Southern, 18; do. 1st, 86; Oregon Railway and Nav., 145; do. 1st, 108; Oregon Transp., 74 1/2; Ohio and Mississippi, Springfield div. 1st, 120; Pennsylvania Co. 4 1/2s, 95 1/2; Peoria, Decatur and Evans-

ville, 32; do. inc., 74½; Quincy and Toledo 1st, 105½; Rome, Watertown and Ogdensburg, 1st consol., 98; Rochester and Pittsburg, 31; do. 1st, 100½; do. inc., 46½; Richmond and Danville, 145; do. West Point, 155; do. 1st, 100½; Richmond and Alleghany, 23; South Carolina inc., 49; do. 1st, 100; St. Paul and Sioux City 1st, 109; St. Paul, Minneapolis and Manitoba, 120½; do. 1st, 109½; do. 2d, 105½; do. 1st, Dakota Ext., 106; St. Louis, Kansas City and Northern, R. E. 7s, 1895, 106; St. Paul and Duluth, 31½; do. pref., 79½; 1st, 109½; Southern Pacific of California 1st, 102½; South Pacific 1st, 104½; Scioto Valley 1st, 102; St. Louis, Alton and Terre Haute div. bonds, 37½; St. Louis, Iron Mountain and Southern, Cairo, Arkansas and Texas 1st, 107; do. 1st, pref. inc., 97; St. Louis and San Francisco 2d, Class B, 91; do. C, 92; Texas and Pacific, 43; do. inc. L. G., 66½; do. Rio Grande div. 1st, 82½; Toledo Delphos and Burlington inc., 20; Wabash, St. Louis and Pacific Gen'l mort. 6s, 82½; do. Chicago div. 1st, 82½; do. Iowa div., 92; Winona and St. Peter 1st, 109; do. 2d, 126; Alabama, Class A, 83½; do. C, 85½; Georgia 6s, 1886, 106½; Louisiana 7s, consol., 63½; Missouri 6s, H. & St. J. issue, 1886, 106; do. 1887, 107; North Carolina 4s, consol., 82½; do. S. T. 3d class, 7½; South Carolina 6s, non-fund., 10; do. 6s, Brown consol., 103; Tennessee 6s, old, 49½; Sutro Tunnel, 3; Consolidation Coal, 31; Colorado Coal and Iron, 51; Cam. Coal, 34½; Maryland Coal, 17½; Central Mining, 1½; Excelsior, 2½; Homestake, 17½; Ontario, 35½; Robinson, 3½; Standard, 19½.

Philadelphia.—Am. S. S. Co. 6s, 104½; Belvidere Delaware 3d, 107; Catawissa 2d pref., 54; Central Transportation, 31; Elmira and Williamsport 6s, 116; Huntingdon and Broad Top Mt. consol. mort. 5s, 88½; New Orleans Pacific 6s, 87½; Nesquehoning Valley, 55; Oil Creek 1st, 103½; Pittsburg, Cin. and St. Louis, 8; Philadelphia and Reading Coal and Iron debent. 7s, 70; Pennsylvania Canal 6s, 95; Philadelphia, Wilmington and Baltimore 4s, 94; Philadelphia and Reading scrip, 91½; do. debent. 6s, 63; St. Paul and Duluth pref., 79½; Susq. Canal 6s, 58; Steubenville and Indiana 6s, 104½; Texas and Pacific consol. mort. 6s, 99; Union and Titusville 7s, 100; West Jersey 6s, 116½. The latest quotations are: City 6s, 108@118; do. free of tax, 128@132; do. 4s, new, 108@113; Pennsylvania State 5s, new loan, 119@121; do. 4s, old, 110@112; do. 4s, new, 114@114½; Philadelphia and Reading R. R., 31½@32; do. consol. mort. 7s, reg., 125@126; do. mort. 6s, 119@120; do. gen'l mort. 6s, coupon, 98½@99; do. 7s, 1893, 121@122; do. new, conv., 79@80; United New Jersey R. R. and Canal, 184½@185½; Buffalo, Pittsburg and Western, 18½@18½; Pittsburg, Titusville and Buffalo 7s, 94½@95½; Camden and Amboy mort. 6s, 1889, 114@114½; Pennsylvania R. R., 63½@63½; do. general mort. 6s, coupon, 24@125½; do. reg., 124@125; do. consol. mort. 6s, reg., 117@118½; Little Schuylkill R. R., 57@58; Morris Canal, 65@69; do. pref., 165@169; Schuylkill Navigation, 5@6; do. pref., 13@13½; do. 6s, 1882, 92½@93½; do. 1872, 104@106; Elmira and Williamsport pref., 58@60; do. 6s, 115½@116; do. 5s, 95@102; Lehigh Coal and Navigation, 41½@41½; do. 6s, 1884, 103@104; do. R. R. loan, 115@117; do. Gold Loan, 111½@112; do. con-

sol. 7s, 117½@118½; Northern Pacific, 41½@41½; do. pref., 80½@80½; North Pennsylvania, 63½@64½; do. 6s, 105½@107; do. 7s, 120@121; do. General mort. 7s, reg., 120½@121½; Philadelphia and Erie, 16@16½; do. 7s, 114@115; do. 5s, 104½@105½; Minehill, 62@62½; Catawissa, 23½@24; do. pref., 56@57; do. new pref., 53½@54½; do. 7s, 1900, 116½@—; Lehigh Valley 60½@61; do. 6s, coupon, 122½@123½; do. reg., 123½@123½; do. 2d mort. 7s, 130½@133; do. consol. mort. 120½@121; Fifth and Sixth streets (horse), 152@155; Second and Third, 109@115; Thirteenth and Fifteenth, 70@78; Spruce and Pine, 45@48; Green and Coates, 75@76; Chestnut and Walnut, 90@92; Germantown, 65@80; Union, 110@115; West Philadelphia, 105@108; People's 12½@12½; Continental, 100@102.

Boston.—Atchison and Nebraska 7s, 117; Atlantic and Pacific 6s, 94½; do. inc. 6s, 31; Atchison, Topeka and Santa Fe 4½s, 88; Boston Water Power, 5½; Boston Land, 7½; Boston, Clinton, Fitchburg and New Bedford 6s; Burlington and Missouri River Railroad in Nebraska 6s, non-exempt, 103; Cheshire, 59; Chicago, Iowa and Nebraska, 145; Connorton Valley, 6½; do. 7s, 52½; do. 7s, Straitsville, div. 33; Chicago, Burlington and Quincy 125; do. 7s, do. 5s, 102, 102; do. 4s, Denver ext., 84½; Chicago and West Michigan, 71; California Southern blocks, 112½; do. 6s, 87; Chicago, Milwaukee and St. Paul, Wisconsin Valley div. 6s, 96; Flint and Pere Marquette, 25½; do. pref., 96; Iowa Falls and Sioux City, 84; Kansas City, Topeka and Western 7s, inc., 108; Kansas City, St. Joseph and Council Bluffs 7s, 115; Kansas City, Lawrence and Southern 5s, 103½; Kansas City, Fort Scott and Gulf, 77; Louisiana and Missouri River 19; do. pref., 36; Little Rock, and Fort Smith, 52½; Marquette, Houghton and Ontonagon, 69; Massachusetts Central, 17½; do. 6s, 68½; Mexican Central, 7s, 87½; do. block, No. 2, 114½; do. block, new, 105; New Mexico and Southern Pacific 7s, 112½; New York and New England 6s, 104½; Northern Pacific 6s, 99½; Oregon Short Line Sub., 112½; do. 6s, 105½; Portsmouth, Gt. Falls and Conway, 27; Rutland, 3½; do. pref., 25; do. 6s, 100; Republican Valley 6s, 103½; Sonora 1st, 106½; do. blocks, No. 4, 425; do. No. 3, 575; Toledo, Delphos and Burlington, 7½; do. Southeast div. income, 6s, 18½; Toledo, Cincinnati and St. Louis, 7½; do. 6s, inc., 18; Wisconsin Central, 19½; do. 2d series, 50; Allouez Mining Co., 2½; Atlantic, 14; Brunswick Antimony, 12; Central, 2½; Douglas, 50c; Franklin, 10½; Huron, 1½; Harshaw, 2½; Indian Queen, 2½; Osceola, 37; Pewabic, 12; Phoenix, 2½; Sullivan, 1½.

Baltimore.—Atlantic Coal, 1.10; Atlanta and Charlotte, 74½; do. 1st, 108; Baltimore City 6s, 1890, 116½; do. 6s, 1886, 109; do. 6s, 1884, 104; 6s, 1916, 122½; Columbia and Greenville 1st, 102; do. 2d, 92; Maryland Defense 6s, 103½; Norfolk and Western pref., 55½; Ohio and Mississippi, Springfield div. 1st, 120½; Parkersburg Branch, 10; Richmond and Alleghany, 23½; Richmond and Danville gold, 100½; Virginia and Tennessee 2d 6s, 101½; Virginia Midland 5th mort., 98½; Virginia Peckers 36; do. coup., 38; do. black scrip, 35; Wilmington, Columbia and Augusta, 109½. The latest quotations are: Atlanta and Charlotte 1st, 108@108½; Baltimore City 6s, 1890, 116½@117; do. 5s, 1916, 122@122½; Baltimore and Ohio, 195@200; do. 6s, 1885, 104½@105½; Canton 6s, gold, 102½@—; Columbia and Greenville 1st, 101@102; Marietta and Cincinnati 1st, 123½@123½; do. 2d, 102½@103; do. 3d, 55½@56; Northern Central, 49½@—; do. 5s, 1926, 97½@96½; do. 6s, 1900, 115½@115½; Virginia Midland 5th mort., 94@95; do. inc., —@79; Virginia Consols, 65½@67; do. 10-40s, 41½@42½.

### Resistance of Structures to Wind-pressure.

At a recent meeting in London of the Institute of Civil Engineers, a paper was read on "The Design of Structures to resist Wind-pressure," by Mr. Chas. B. Bender. It was observed that wind-pressure was as often over-rated as under-rated. Instruments to measure the velocity and force of the wind were not very reliable on account of the frequent change of direction of the wind, and of its action by sudden gusts and not by mere statical pressure. The most trustworthy experiments, made with falling plates by General Didion, yielded pressure of 40lb. per square foot on a test plate having an area of 10.76 square feet, for a velocity of 111 miles per hour. The size of the test plate was very material. Had Didion used plates twelve inches square, the pressure would have been only 32lb. The form of surface exposed to the wind was also of importance. Hollow cups experienced double pressures, cylinders only one-half of the test-pressure, and there were forms which reduced it to less than one-fourth of that on a flat plate. Since hurricanes generally acted with great lifting power, in calculating the wind-pressure upon a structure, the most dangerous direction of the wind must be considered. For bridge-floors, wind coming from below at an angle of about 25 deg. was the most trying. Now, assuming the wind to blow in this direction, and a little from the side, the total opposing surface of a structure, having regard to the size, position, and form of its members, and, in the case of railway bridges, carrying a light passenger train on the floor, must be considered. Engineering structures must be so built that there should not be any movement, either of shifting, turning on a pivot, or tilting of the whole structure. Further, lateral and transverse wind-bracing must not be strained beyond one-third of the calculated breaking strain. Since the horizontal wind-bracing might experience strains from the vertical loads, those strains must be deducted from the specified maximum; and it would be found that for short spans there would remain available for wind proper, five tons, and for large railway bridges six tons, per square inch of lateral wind-diagonals. The transverse bracing might be influenced by the vertical loads. The wind-pressure of the top lateral bracing of a bridge had to be carried to the lower floor, and each end must be sufficiently strong and stiff. As regarded details, it was essential to provide strong plates or pins for joint connections, so as to absorb additional or secondary strains upon the members. In the case of eccentric connections, the moments of flexure arising from the application of forces must not be neglected, and there should be members strong enough to transfer the wind-strains to the central joint. Iron piers, also long-span bridges, must be carefully examined as regarded tilting, and the danger must be met by giving a sufficient base, or by anchoring to heavy blocks of masonry, well proportioned and well executed, or by both of these methods. The consideration of the action of wind materially influenced the proportion of the width of a bridge to its



depth, and the latter was limited long before the maximum height was reached, as regarded vertical loads, in a bridge of most economical design. For instance, in a girder-bridge of 400ft. span and 18ft. wide, the truss could not with safety be deeper than 45ft.; if built 50ft. deep, a width of 21ft. was advisable. As the force of the wind upon a large railway bridge amounted to about the load of an ordinary train, it followed that its design for carrying vertical loads was only part of the problem to be solved. Bridges and similar structures, if equally well designed in both directions, horizontal as well as vertical, were satisfactory, and they would not be so unless this were done.

The second paper read was on "The Resistance of Viaducts to Sudden Gusts of Wind," by Professor Jules Gaudard. In order to ascertain the stability of a structure exposed to wind, it was necessary to find greater pressure to which it might be subjected by sudden squalls. The maximum wind-pressure in England had been stated by Rankine to be 55lb. on the square foot, but a pressure of 71lb. was observed at Liverpool in September, 1875. Tornadoes in America were reckoned to have exerted pressure of from 84lb. to 93lb., though allowance for pressures of only from 33lb. to 50lb. was made by American engineers in designing bridges. In order to procure more precise data, it was urged that suitable apparatus should be at once established, in various places, for recording the pressures attained during severe gales. Suspension bridges, owing to their flexibility, were most affected by wind, as evidenced by the injuries inflicted by gales on the Roche-Bernard and Menai bridges. This class of bridge has been stiffened by additional cables from the top of the piers to the roadway, by stays underneath, by cross-bracing between the suspension-rods, by stiffening the sets of chains themselves, or by spreading out the cables laterally at the tops of the piers. Thibault found that with two square screens placed at the distance apart of one of their sides, and one completely covering the other, the wind-pressure on the two screens was 1.7 of that upon the exposed screen. The pressure, however, upon two plate-girders connected by a platform was evidently less, and, when the roadway was at the top or bottom of the girders, might be reckoned as 1.2 of the pressure on the windward girder. In the case of trellis-girders, each opening might be regarded as an orifice with thin sides, in passing through which the stream of wind experienced a certain amount of contraction, which occasioned a somewhat greater resistance than the proportion of solid to open would indicate. An arch had the merit of opposing less surface to the wind in the central portion of the span; whereas the reverse was the case with a bow-string. Two narrow iron-arched bridges of large span at Oporto and Montereale had been secured against the wind by special contrivance—the first, by spreading out the iron ribs towards the springings, so that the ribs, though only placed 13ft. apart at the crown, were 49ft. apart at the springings; and the second, by placing side buttresses against the haunches of the arch, thus providing a wider base. Trains

passing along a lattice-girder bridge increased the surface exposed to the wind. In the case of high viaducts, the greatest strain was thrown upon the anchorage of the piers. The strains upon the Bouble viaduct, having lattice-girders and braced iron piers 189ft. high were investigated, and it was shown that in the extreme case of a wind-pressure of 55.3lb. and a train on the viaduct, a strain of 24½ tons would be thrown on the anchorage. The strain on the anchorage might be provided for, either by stays fastened near the tops of the piers and secured to the ground, or by widening out the base of the piers by buttresses. High timber stagings, with their broad surfaces, were specially exposed to damage from wind, but they might be effectually braced by iron-wire cables. The force of waves, beating against very exposed structures, appeared occasionally to have attained a pressure of about 6,000lb. per square foot, but in general the shock of waves was estimated not to exceed from 600lb. to 1,000lb. Even with this latter pressure, the blow of the waves against the lower portion of a lighthouse was more to be dreaded than the pressure of the wind above, unless the tower was exceptionally high. On the contrary, in the case of a high viaduct, the effect of the wind on the lofty superstructure was more dangerous than the beating of the waves against the narrow piers.

#### The Coal Trade.

THE leading coal-carrying companies make the following reports of their tonnage for the week ending March 25th, and for the year to same date, compared with their respective amounts carried to the same time last year:—

	Week.	1882.	1881.
Reading Railroad.....	117,585	2,143,866	2,082,685
Schenectady Canal .....	2,769	30,424	4,070
Lehigh Valley .....	86,449	1,676,167	1,593,636
Delaware, Lackawanna and Western.....	66,033	823,351	925,017
Shamokin .....	14,336	191,408	220,794
Central R. R. of New Jersey.....	62,351	744,133	883,113
United R. R. of New Jersey.....	28,727	335,480	355,450
Pennsylvania Coal.....	17,837	186,544	235,091
Delaware and Hudson Canal.....	49,332	645,576	821,061
Huntingdon and Broad Top Mountain .....	4,901	140,226	108,868
Penn. and New York.....	22,171	443,690	397,065
Clearfield, Pa.....	67,047	604,450	470,792

The total tonnage of anthracite coal from all the regions for the week ending March 25, as reported by the several carrying companies, amounted to 403,714 tons, against 375,360 tons in the corresponding week last year, an increase of 28,354 tons. The total amount of anthracite mined for the year is 5,020,251 tons, against 5,640,883 tons for the same period last year, a decrease of 620,632 tons. The quantity of bituminous coal sent to market for the week amounted to 94,989 tons, against 105,268 tons in corresponding week last year, a decrease of 10,289 tons. The total amount of bituminous mined for the year is 1,112,817 tons, against 968,893 tons for the corresponding period last year, an increase of 143,924 tons. The total tonnage of all kinds of coal for the week is 498,693 tons, against 480,628 tons in corresponding week last year, an increase of 18,065 tons, and the total tonnage for the coal year is 6,138,063 tons, against 6,609,776 tons to same date last year, a decrease of 476,708 tons. The quantity of coal and coke carried over the Pennsylvania Railroad for the week ending March 25 was 226,913 tons, of which 163,595 tons were coal and 63,318 tons coke. The total tonnage for the year thus far has been 2,517,464 tons, of which 1,767,671 tons were coal and 749,793 tons coke. These figures embrace all the coal and coke carried over the road east and

west. The shipments of bituminous coal from the mines of the Cumberland coal region for the week ending March 25 were 4,131 tons, of and for the year to that date 444,766 tons, an increase of 90,376 tons as compared with the corresponding period of 1881. The Cumberland coal miners' strike continues, but conferences are being conducted both at Baltimore and in Cumberland with a view to an adjustment of differences, though as yet no prospect of an early result is indicated. The Reading Railroad shipment for last week, ending April 1, was about 216,600 tons, of which 62,800 tons were sent to and 33,000 tons shipped from Port Richmond, and 18,500 tons sent to and 11,000 tons shipped from Elizabethport. Vessels are scarce at Port Richmond, and freights are quoted at \$1.25@1.40 to Boston and \$1.25@1.30 to Providence. There is some coal shipped from the ports in New York harbor, with freights quoted at \$1@1.15 to Boston.—Phil. Ledger, April 3.

In regard to the sizes of nails and the designation by the term "penny," such as "eight-penny," "ten-penny," &c., the *Journal of Commerce* says:—Nails were originally sold by the "score" and the "hundred," the latter being six score, or 120, and a "thousand" meant 1,200 nails. The words "four-penny," "ten-penny," &c., are a corruption of four-pounds, ten-pounds, &c., (which were first "four-pun" and then "four-punny, &c.), meaning that 1,000 (1,200) nails of this size weighed four pounds, ten pounds, &c., respectively.

ANOTHER member of the New York Legislature has sent his pass back to Vanderbilt. He sent it back to have it made out for his family, instead of himself alone.

#### THE LAKE SHORE AND MICHIGAN SOUTHERN RAILWAY COMPANY.

TREASURER'S OFFICE, GRAND CENTRAL DEPOT, New York, March 28, 1882.

The Board of Directors of this company have this day declared a dividend of TWO per cent upon the capital stock, payable on MONDAY, the 1st day of May next, at this office.

For the purposes of this dividend, and also for the annual meeting of the stockholders for the election of directors, etc., which is to be held on the 3d day of May next, the transfer books will be closed at 3 o'clock P. M. on Saturday, the 1st day of April next, and will be reopened on the morning of Friday, the 6th day of May next.

E. D. WORCESTER, Treasurer.

## DODGE & SINCLAIR,

MANUFACTURERS OF

## Rubber And Leather BELTING

RUBBER HOSE PACKING,  
TUBING, SPRINGS,  
GASKETS, Etc.

RUBBER CLOTHING, LACE  
LEATHER, BELT HOOKS.

RAILROAD, MINING, AND  
MILL SUPPLIES.

No. 21 Park Place,  
NEW YORK.

This space to be occupied by  
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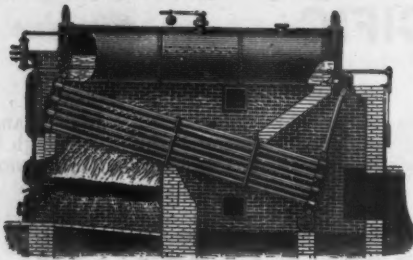
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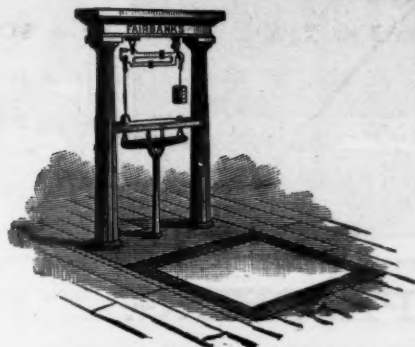
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